

In the Claims

Please amend the claims as follows:

1 1. (Amended) A method of branding a gemstone diamond
2 comprising:
3 directing a focused ion beam at the gemstone diamond to
4 be branded and
5 manipulating [controlling] the beam such that the beam
6 impacts the surface of the gemstone diamond at a number of
7 specified locations for a specified amount of time at each
8 location to graphitize a portion of the gemstone diamond in
9 the shape of a desired design.

1 2. (Amended) The method of claim 1 wherein the focused
2 ion beam is manipulated [controlled] by a computer.

1 5. (Amended) The method of claim 3 wherein the design is
2 between about 7 nanometers and 250 micrometers [7 nanometers
3 and] wide at its widest point.

1 7. (Amended) The method of claim 1 further comprising
2 removing the graphitized portions of the gemstone diamond so
3 that the design is carved into the surface of the gemstone
4 diamond.

1 8. (Amended) The method of claim 1 wherein the gemstone
2 diamond is coated with a conductive layer.

1 10. (Amended) The method of claim 1 wherein the gemstone
2 diamond is exposed to a charge neutralizer.

1 11. (Amended) A method of branding a gemstone diamond
2 comprising the steps of:

3 securing the gemstone diamond onto a holder capable of
4 being used in a coordinate transfer system;

5 using the coordinate transfer system to create mapping
6 data which represents the distances between the location on
7 the gemstone diamond which will be branded and certain set
8 reference points on the holder;

9 using the mapping data to manipulate [control] a focused
10 ion beam machine such that it produces a focused ion beam
11 which impacts the gemstone diamond at a desired location for a
12 desired length of time to brand to design onto the gemstone
13 diamond.

1 12. (Amended) The method of claim 11 further comprising
2 generating design data which represents the design to be
3 branded onto the gemstone diamond; and using the design data

1 in conjunction with the mapping data to manipulate [control]
2 the focused ion beam.

1 13. (Amended) The method of claim 11 further comprising
2 the step of coating the gemstone diamond with a layer of
3 conductive coating.

1 18. (Amended) The method of claim 11 wherein the holder
2 is capable of holding more than one gemstone diamond at a
3 time.

1 22. (Amended) The method of claim 21 wherein the mapping
2 data is determined for more than one gemstone diamond.

1 24. (Amended) The method of claim 23 wherein the ion
2 beam is manipulated [controlled] to impact the gemstone
3 diamond such that the gemstone diamond is branded wherein each
4 impacted area corresponds to one pixel of the design.

1 25. (Amended) The method of claim 12 further comprises
2 the step of relating a local coordinate system associated with
3 the design to be branded on the gemstone diamond to a global
4 coordinate system associated with the mapping data.

1 26. (Amended) The method of claim 11 wherein the focused
2 ion beam brands the gemstone diamond by converting a portion
3 of the gemstone diamond into graphite.

1 28. (Amended) The method of claim 27 wherein the
2 graphite is removed by exposing the branded gemstone diamond
3 to potassium nitrate.

1 29. (Amended) The method of claim 27 wherein the
2 graphite is removed by exposing the branded gemstone diamond
3 to plasma.

1 30. (Amended) The method of claim 11 wherein a voltage
2 applied to produce the ion beam is manipulated [controlled]
3 such that the computer is able to vary how far the ion beam
4 penetrates the surface of the gemstone diamond and how deeply
5 the gemstone diamond is branded.

1 31. (Amended) An apparatus for branding a gemstone
2 diamond comprising:

3 a coordinate transfer system controlled by a computer;
4 a focused ion beam machine manipulated [controlled] by
5 the computer;

6 one or more computer programs, performed by the computer

1 attached to the coordinate transfer system, for generating
2 mapping data which represent the distances between the
3 location on the gemstone diamond which will be branded and
4 certain set reference points on the holder;

5 one or more computer programs, performed by the computer
6 for using the mapping data to manipulate [control] the focused
7 ion beam machine such that it produces a focused ion beam
8 which impacts a surface of the gemstone diamond at one or more
9 desired locations for a predetermined length of time to brand
10 the design onto the gemstone diamond.

1 32. (Amended) The apparatus of claim 31 further
2 comprising one or more computer programs, performed by the
3 computer, for generating design data which represent the
4 design to be branded onto the gemstone diamond and using the
5 design data in conjunction with the mapping data to manipulate
6 [control] the focused ion beam machine.

1 33. (Amended) The apparatus of claim 31 further
2 comprising a second computer connected to the first computer
3 wherein the first computer performs one or more computer
4 programs for creating mapping data which represent the
5 distances between the location on the gemstone diamond which
6 will be branded and certain set reference points on the

1 holder; and the second computer performs one or more computer
2 programs for using the mapping data to manipulate [control]
3 the focused ion beam machine, such that it produces a focused
4 ion beam which impacts the gemstone diamond at a desired
5 location for a desired length of time to brand the design onto
6 the gemstone diamond.

1 34. (Amended) The apparatus of claim 33 further
2 comprising a third computer connected to the first computer,
3 wherein the third computer performs one or more computer
4 programs for generating design data which represents the
5 design to branded onto the gemstone diamond.

REMARKS

I. INTRODUCTION

In response to the Written Opinion of April 27, 2001, claims 1, 2, 7, 8, 10-13, 18, 22, 24-26, 28-34 have been amended. Claim 5 was amended to correct a typographical error. Claims 1-36 are pending in the application.

Applicants respectfully submit that claims 1-36 meet the criteria for Novelty under PCT article 33(2) and Inventive Step under PCT article 33(3).